Space Weather Forecast

Issued on Monday, 11 April 2022 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic Storms, mainly at first on day 1 and on day 3.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with a common class flares from AR2978. There is now one sunspot region on the Earth-facing disc which appears small and simple and very close to the western limb. A large filament in the southwest of the disc lifted off on 9th Apr. The associated CME has been analysed, with the bulk of the ejecta travelling below Earth's orbit, but it might have an Earth directed component.

Solar Wind / Geomagnetic Activity: The solar wind, as measured by DSCOVR at L1, was indicative of weak coronal mass ejection effects and a high speed stream arrival through the overnight period UTC. Solar winds have been slightly elevated to elevated peaking at 537 km/s at 10/1352 UTC. The interplanetary magnetic field strength was Moderate to Strong becoming Weak by 10/1200 UTC The important north-south component, ranged between strongly positive and strongly negative, with the most notable switch to southward direction between 10/0200-0900 UTC. Geomagnetic activity was largely Quiet to Active (Kp 0-4) with two Moderate Geomagnetic Storm intervals (Kp 6) between 0300-0900 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Very Low, with only one small and simple sunspot on the disc. There is a slight chance (5-10%) for further C-class flares.

Solar Wind / Geomagnetic Activity: Solar winds are currently slight elevated and little change is expected for days 1 and 2 (1 and 12 April). A further coronal mass ejection is possible late on Day 2 (12 April) or early Day 3 (13 April), and this may enhance the solar wind. Geomagnetic activity is likely to be Quiet to Unsettled becoming Active at times with a Chance of minor geomagnetic storms, especially at first on Day 1 and during Day 3.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	40	40	50	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	2	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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